OLD DAYS OF RAILROADING.

PERSISTENT TRAIN WRECKING FIFTY YEARS AGO.

The People About Tribe's Hill Bitterly Opposed to the Building of the Road There—How They Obstructed the Movement of Trains—High Speed Rare in Those Days.

"Fifty years ago I worked at the building of what is now a portion of the New York Central Railroad," said a veteran ex-railroader, "and I don't believe there was ever in the history of railroad building in this or any other country such a struggle between people living along the line of a railroad and the company building it as there was on that one. This was especially the case in the vicinity of Tribe's Hill, where certain property owners refused to sell the right of way for the railroad, and the property had to be taken by the company under the law of eminent domain. The property owners, after the route for the railroad had been fixed by process of law, harassed the workmen in various ways while the roadbed was being graded and the track laid. Whole sections of embankment or grade would be destroyed by them in a single night, and rails torn up almost as fast as they could be put down. The work had to be completed at last under a strong guard of special constables.

"After the railroad was finished in that locality it was supposed that the persistent opposition to the work would cease, but the first train that attempted to run through that hostile neighborhood ran into a pile of heavy logs and other obstructions, and the engineer and several passengers were severely injured. That was undoubtedly the first successful attempt at train wrecking in this country. There was no doubt in the mind of any one who the perpetrators of the outrage were—and some of them were men of a good deal of consequence in those days; but no one was arrested.

"The engineer of the next train that ran on that part of the railroad was on the lookout for trouble, and discovered an immense pile of cordwood on the track. It took him and the rest of the trainmen an hour to throw the wood clear of the rails so the train could proceed. They had only gone a few rods when, on rounding a curve, the engineer and fireman discovered an immense stack of straw on the track. Suspecting that something more formidable than straw was hidden by the stack the trainmen tore it to pieces and scattered the straw, but found no other obstruction. During the work of removing the stack, though, the men and the train were assailed by showers of stones and clubs from the bushes and high banks on either side of the railroad.

"Several days after that, straw stack after straw stack was found piled on the rails, and each time the engineer would bring the train to a stop, for fear that more solid and dangerous obstacles were inside the straw. After a score of these stacks were torn apart and no dangerous obstructions found concealed in them, the engine was kept moving and made to scatter the straw without stopping the train. This bunting of the stacks down with the engine was at first done with caution and by running it slow. By and by, however, the engineer put aside his caution and went whizzing through the stacks without slacking the speed of his train. This is probably what the opponents of the road were waiting for. At any rate, one day the engineer rushed his locomotive against a large straw stack and instantly found himself in a disastrous wreck. The engine was rolled down the bank and two cars were smashed. The fireman was seriously hurt, but the engineer miraculously escaped with a few scratches. Several of the passengers were hurt. That straw stack was simply a thin covering to a pile of huge stones which the farmers had rolled upon the track.

"For weeks the track continued to be strewn with obstructions of various kinds, and with each train men were carried whose duty it was to clear the track of these obstacles. After a time these enemies of the road became more bold and adopted a novel plan of obstructing and delaying the evening train that ran west. To carry out this plan a number of the farmers broke into a shed where the cars were housed and stole a handcar from the company. This they loaded with big stones and ran it into the curve at Tribe's Hill, where they awaited the coming of the train. When the train came along the men on the handcar dumped several big stones out on the track. This brought the train to a standstill and the gang on the handcar started on. The car was run a few hundred feet, where it was stopped again. When the men on the train cleared the stones from the track and the train started ahead, it soon came in sight of the handcar again, when the gang dumped more stones on the track and went on. And so for miles the train was harassed in its progress, causing hours of delay and hard work for the men. Several persons were arrested, charged with being concerned with this last bold effort to hamper traffic on the railroad, but they were all discharged. The company was at a loss to know what course to pursue to put a stop to these outrages, but at last, when a number of persons were discovered in the act of burning the railroad bridge at Amsterdam, the managers determined to take the law in their own hands.

"A number of trusted employees were selected and stationed at different points on the dangerous sections of the railroad, armed with rifles, and they had orders to shoot on sight any person detected in placing an obstruction on the track. One of these men was the late George Cox, the pioneer locomotive engineer of the New York Central. He was stationed east of Tribe's Hill. The night he went on duty as an armed guardian of his employers' property was quite dark, and objects could not be seen with much distinctness many feet away. Cox placed himself behind some bushes not far from the railroad, and, as he said afterward, prayed that he might not be called on to carry out the orders he had received. He had not been long on guard when, to his dismay, he heard persons approaching the track from the opposite side. He peered from behind his bush and presently could distinguish the forms of two men. As they drew nearer he could make out that they were carrying something between them, which was plainly very heavy. The west-bound train would be along there in ten minutes, according to its schedule, and Cox trembled with excitement as the men silently approached the track with the heavy object they were carrying. When they reached the track and deliberately placed that object between the rails Cox felt himself turning cold, but he also felt that it was his duty to act, and to act promptly. He raised his rifle and aimed at one of the men. His finger was on the trigger. But somehow he could not pull it. He was prevented by something from shooting, and he resolved to take the men into custody instead of having their blood on his hands. He advanced upon them and warned them that if they made an attempt to escape they were dead men. They remained stock still and speechless. When Cox came up to them he found them terror-stricken. He recognized them as two carpenters who had been at work for the Erie Canal section boss. Their job was finished and they were carrying their heavy toolchest to the Tribe's Hill station, where they intended to take the cars for home. The weight of the chest had forced them to set it down as they had in order to rest themselves a moment, with no thought that they were endangering a train.

"The thought of how nearly he had come to killing in cold blood an innocent and unsuspecting man so affected Cox that the men were compelled to carry him to the station. He was taken home and lay for weeks between life and death from severe nervous shock and prostration.

"But that close call of the carpenters' put an end to obstructing the railroad around Tribe's Hill. The prospect of being filled with lead while engaged in their diversion of train-wrecking was more than the progressive citizens cared to encounter, and there was never any trouble on the track after that night.

"One of the first engineers to run a mile-a-minute clip in this country was Bill Hall. That was more than fifty years ago, but Bill is still running an engine—a pusher on the New York Central out at Batavia—and that makes him the oldest engineer in actual service in the United States, if not in the world. He is 75 years old, 6 feet 2 inches in his stockings, and as sound as a bullet. In 1848 he was running an engine on the old Boston and Maine Railroad, of which Charles Minot was superintendent. Bill's engine was called the Antelope, and she was worthy of the name. The run was made between Boston and Lawrence, twenty-six miles. Charley stood on the locomotive at the engineer's side, and when the first twelve miles were run, and it had taken thirteen minutes, Charley said to Bill:

"'This will never do, William! Pull her wide open!'

"And William did pull her wide open, and they made the remaining fourteen miles in thirteen minutes.

"Two years later Charles Minot came to the New York and Erie Railroad as superintendent. The Erie was then only open as far west as Elmira. Bill Hall and a number of other Boston and Maine boys came with Minot to work on the pioneer trunk line, among them Horatio G. Brooks, who brought his locomotive with him, carrying it by a sailing vessel from Boston to New York, then by a Hudson River boat to Albany, thence by the Erie Canal to Buffalo, and thence on a Lake Erie boat to Dunkirk, where he put the engine together. It was what was known as a 'Hinckley engine,' and was named 'The Dunkirk.' It was the first locomotive on the western end of the Erie, and helped build the railroad east from Dunkirk. Brooks afterward became master mechanic of the Erie and division superintendent. In 1868 he founded the Brooks Locomotive Works, and died a few years ago a rich man. Charley Tuffts, Charley Sherman, Dave Carey and Bill Kimball were others who came with Minot. While they were building the railroad west of Hornellsville Tuffts was running a gravel train with Hinckley Engine 73. One day in 1851, just before the railroad was to be opened from New York to Dunkirk, Tuffts and his engine were standing near Tip-Top Summit when suddenly the engine began to sink. Tuffts and his fireman had scarcely time to get out of the cab before old 73 was going out of sight beneath the surface of the earth. She disappeared completely, with several rods of track and embankment. They were found ten feet down, and it took two weeks to get the locomotive out, and longer still to fill up the sinkhole out of which the bottom had dropped and taken the railroad and engine with it. When the railroad was opened in May, 1851, with two excursion trains from New York, on one of which were President Fillmore, Daniel Webster, Stephen A. Douglas, William H. Seward, and a host of other distinguished men of that day, Charley Sherman pulled the first train from Hornellsville into Dunkirk and Bill Hall pulled the second section. Hall and Dave Carey and Bill Kimball are the only survivors of those pioneer Boston and Maine engineers, and Hall and Carey are the only ones still in service. Carey has run passenger trains between Hornellsville and Dunkirk since 1851. He never had an accident, and never laid off a day until recently, when he took a couple of days' rest 'to see how it would feel,' he said.

"Speaking of fast locomotives of the olden time reminds me of the greatest one of its day, the Carroll of Carrollton, named for the great Maryland signer of the Declaration of Independence. She was built by Ross Winans in Baltimore for the Boston and Worcester Railroad in 1849. She was the first locomotive in this country to have wrought-iron driving wheels, and the first one in the world with drivers seven feet in diameter. And she was a coal burner, the very first of her kind. Jimmy Jackman was the engineer who ran her, and he saw every bit of her machinery made and put together, a good many of the appliances being of his own suggestion. He thought nothing of running her a mile in sixty seconds, and a mile in sixty-three seconds was a common and easy task for her. Those were the days of single tracks, mind you, and hand brakes and cast-iron rails, liable to 'snake heads,' and other primitive appliances, so to run a locomotive at a mile-a-minute rate, which to-day is considered a feat worthy of being talked about and boasted of, required nerve and judgment in an engineer that few engineers have to-day.

"And speaking of 'snake heads,' that is something the present-time railroader or railroad traveller knows nothing about. One of the most important employees of a railroad in the old days was the 'snake spiker.' When the rails were simply iron straps spiked to wooden stringers the straps in time worked loose, and the ends where they were joined together would curl up and look like a big snake with its head raised a few inches from the ground. Hence the name. The snake spiker was a trusted man, who had a certain section of the track which he was detailed to patrol, with a sledge hammer and a leather bag with new spikes in it slung by a strap over his shoulder. He was to keep a sharp lookout for snake heads, for they were dangerous things for a car to come in contact with, and, when he found one, spike it down flat to the stringer again. The safety of life and property on railroads depended in a great measure on the vigilance of the snake spiker. And it was over such rails as those that the boys of the old days had the nerve to push their engines a mile a minute."

WORSE THAN WAR.

Footprint's Night Ride in a Box Car with Two Mountain Mules.

"Well," said the Footprint to Slug Seven as he settled down on his stool and began to throw in a handful of type, "if I didn't have a time of it getting down here out of those mountains."

"Been up in the mines?" inquired Slug Seven.

"Yep," replied the Footprint. "Just came out. Footed it from Angels to Milton yesterday and rode into Stockton on a side-door sleeper last night. A side-door sleeper," continued the Footprint, "is not the most comfortable mode of travelling. Personally, I prefer to ride on a red cushion, but the heartless and exorbitant demand of the Railroad Trust for spot cash and the war tax which plutocratic greed has put on whiskey compelled me to walk or come as freight. I came as freight."

"Sure," said Slug Seven.

"The unpleasant feature of the trip," continued the Footprint, "was the base betrayal of confidence on the part of the brakeman with whom I negotiated for an undisturbed passage. For a cash consideration of six bits and a drink of liquor he verbally contracted to waybill me from Milton to the division end at Stockton. We went up street to take the drink—well, you know how one word brings on another. By train time the $4 I had sunk in my jeans had been fished to the surface and sent across the bar for red liquor. The brakeman was full when he started for the yards. So was I when I started after him. The brakeman confided to me on the way through the yards that he owned the whole train and I could ride anywhere and any way I wanted to. I told him that I was surrounding at least a quart of Milton whiskey and if it was all the same to him and he had a nice, dry empty box car I would be shipped as an unbroken original package. He agreed and we went over where the train was standing made up to find that empty. The brakeman ran a door open, gave me a hurried boost in and ran the door shut and locked it. After a bit I struck a match to look about and what do you suppose that cuss had done?"

"Give it up," said Slug Seven.

"Billed me as livestock, by gum! Fact. There I was locked in a box with two mules, both loose, and all of us good to keep company to the division end. What was that Sherman said about war? Said it was hell, didn't he? Well, it ain't. It's only an imitation. The real, orthodox, rose-colored hell is to spend a night in a locked box car with two mountain ranch mules. It isn't a long run from Milton in, and I concluded, after the train had bumped along about three miles and those scared mules had begun to charge around and kick a rat-a-tat-tat, tat on the sides of the car, that the only plan of campaign left to me was a flank movement and a sudden mounting of one of the animals. It wouldn't be a dream of pleasure on that mule's back, but it would be safer than dodging four rapid-fire hind heels unlimbered for action. I got on the mule all right, and after a little bucking he steadied down tolerably well. The animal was evidently scared to death and seemed to take comfort in being straddled by a rider.

"Well, I was just chuckling to myself over the state of affairs in the live stock department of the Espee Railway, and figuring that another hour would see us in the division yards, where my friend, the brakeman, would open the door, when the train stopped, evidently at a siding, as I knew we weren't near a station. We bumped about a bit and I took a double wrap in the mule's ears; then we stood still while some other cars were bumped about and then I heard two short toots of the whistle and a rumble that gradually grew fainter. The train had pulled out and we were side-tracked! We stayed there till morning, too, and I rode that son of a jackass, with a backbone like the ridge of a church roof, up and down and around that car every weary minute of all that weary night. To quit riding meant to go to sleep, fall off and have the liver and high lights and half-tones trampled and kicked out of me by two scared mountain mules. I estimate that I rode that mule 138 miles and three furlongs in that car and the car travelled seventeen miles before being side-tracked. The remaining three miles of the twenty between Milton and Stockton I made on foot, thus completing a journey of 158 miles three furlongs in a straight line between two given points that are but twenty miles apart, a mathematically impossible feat accomplished by one jackass with the aid of two relatives on the male side of the house."

The Footprint sighed, as he paused to bite off a chew of tobacco, and Slug Seven took advantage of the opening to remark that a man who had travelled so far under such circumstances must be dry.

THE GOOD SAMARITAN.

An East Side Sunday School Boy Throws New Light on His Character.

The small boy's ability to translate the language of his elders into the speech of his comrades had an illustration lately in the Sunday school class of an east side settlement, and the incident showed as well that when the child sometimes hesitates to answer his teacher's questions, it isn't because the stupid little head has failed to grasp the idea of the lesson, but because the book-words which he thinks the teacher wants won't come out. This Sunday school class had been studying the story of the priest, the Levite and the good Samaritan. The teacher wanted to bring the lesson down to to-day and to point out that the Samaritan was essentially a Christian. After striving to do so she wished to ascertain how far she had been successful and she asked the boys what a man who acted like the good man of the Bible story would be called to-day.

The class became dumb, with the exception of one small youngster who seemed to be choking, either with a word that refused to come out, or with his own emotion at having an idea which he wanted to express. He required some little encouragement, and the teacher even went so far as to suggest the initial sound of the word which she hoped he would say, Christian.

"He's a Chr——" she said.

But the boy knew what he wanted to say.

"He's all right," he said, and the teacher decided to let it go at that.

COTTON BALES, NEW STYLE.

THE CYLINDRICAL COMPRESSOR AND ITS ECONOMIES.

Two Companies Are in the Field, and They Contend That a Revolution Is Coming in the Shipment of Cotton—The Merits of the New System of Baling the Staple.

When that veteran money maker, John E. Searles, retired as an officer of the American Sugar Refining Company and became President of the American Cotton Company, whose business is the pushing into use of one of the new forms of cotton bales, there could be no doubt in any shrewd person's mind that there were chances of "millions in it." At the present time the whole cotton belt of the United States is intensely stirred up over the warfare between the square-bale and round-bale advocates, and if the round-bale men can win out over the conservatism, prejudice and invested interests of the square-bale men there are probably millions enough in sight for them to satisfy the avaricious.

In the cotton district and among cotton factors brokers and mill men the arguments of the round-bale and square-bale men are well known for the warfare has been going on for two or three years, but outside of those directly interested little or nothing is known of it. Yet it is a matter of such importance, in a country where cotton is one of the great staples of production, that it directly concerns every citizen.

The standard cotton bale of the world—the square bale—is to-day just what it has been for generations. From the day when Whitney invented the cotton gin and thus made cotton a profitable crop to raise in the South, the fluffy product of the boll, relieved of its seeds, has been put up in the one kind of package for transportation. During this long time there have been improvements made in cotton presses, in compresses, in ties and bagging, but the making of the bale remains the same. From the gins the lint is carried to a big square box with a plunger in it, where it is squeezed down into a square form, and this is covered with a jute casing and the bale held in shape with half a dozen iron ties.

These bales are perhaps six feet long and four feet tall and each one weighs 500 pounds. These are the bales with which almost every one is familiar. In this form, however, it is altogether too bulky to be shipped profitably to Europe or for very long railroad hauls, and so at such shipping places there have been established secondary presses, called compresses, which take the plantation bale and squeeze it down to one-third its cubic dimensions and to a corresponding degree of density. These bales are then forced into the holds of ships by jackscrews to get as many as possible into the space. If these bales were always produced of the same dimensions there would perhaps be less argument in favor of a new bale, upon the special ground of shipping convenience, but this is not the case. They frequently vary nearly a foot in height and a full foot in length, and it is not uncommon for stevedores to cut off the extra length to make the bale stow snugly. The cotton thus cut off is more or less damaged. This, however, is but a small part of the disadvantage of the old bale and the need of some better way to handle cotton has been recognized by experts for years.

A. B. Shepperson, the statistician of the Cotton Exchange, says in his "Cotton Facts":

"The old style of American cotton bale is put up in such an unscientific manner as to make its transportation, its storage, its marine and fire insurance dearer for the same weight and value of cotton than any other cotton of commerce. From the defective methods of baling there is a greater loss in weight in transportation and from theft, greater damage by wet, dirt, dust, fire, &c., and greater loss to the mills from the practically useless bagging and ties and the freight on them than on any other kind of cotton. The bagging on a bale weighs twelve to fourteen pounds and the ties about ten pounds, so that on every bale of cotton transportation has to be paid on about twenty-three pounds of useless bagging and ties.

"It is the universal custom to have the planters' square bales compressed by powerful compressors, before shipment by ocean steamers or to any considerable distance by railroad. The cost of compressing is about 50 cents a bale. But this is not all, for the clipping of the ties in order to shorten them, the removal of the side pieces of the bagging, which are no longer needed for the smaller bale, and the loss of cotton in handling at the compress causes a loss in weight at the compress averaging four pounds a bale. At 6 cents a pound this would add 24 cents to the previous charges. To this would usually have to be added 25 cents a bale to cover storage until the cotton is ready for shipment and drayage to and from the compress."

Here at one stage alone of the moving of the cotton crop to the great world's markets is a tax of about $1 a bale, which it is declared is entirely done away with by the newer processes, and this one item on a crop of 10,000,000 to 12,000,000 bales each year has in it enough to attract the attention of both the inventor and the money maker. But there are enough other ways for saving, it is authoritatively declared, that make it possible that at least $3 can be saved in the marketing of every bale. This gives from $30,000,000 to $36,000,000 a year, which a successful new system will make it possible to divide between the inventor, the cotton raiser and those who handle the cotton on its way to the mills.

This thirty-odd millions of dollars a year is the incentive which has stirred up the inventor and the money maker to the introduction of a new and better system, and to-day there are two companies in the field, each with a baling system which they declare to be far ahead of the old one and each declared by its advocates to be superior to the other.

Independent critics uphold the claims of both for superiority over the old system and declare that each of the new systems has points of advantage common to both and differences which are so marked that they do not compare, but must each be considered superior to the other upon these special points. They are alike only that by both round bales of a high degree of density are produced right at the cotton gin with an initial saving which runs right through the whole after process of shipment and transportation and even into the mills where the cotton is broken out of the bales.

The older of these processes and the one which is most advanced in use is that of the American Cotton Company. The foundation of this system was laid by a man named Bessonette. The peculiarity of the bale is that it is made of a compressed layer or batting of the cotton, rolled up into a solid cylindrical form, just as one would roll up a carpet or a long strip of paper. In this form each layer forms a binding for the layers beneath it and the bale, no matter how densely the cotton is compressed, stays in form without any binding or ties and merely requires bagging to be ready for shipment. The other new bale is also cylindrical in form and is produced by what is called the Lowry process, which differs as much in the methods and machines used from that of the American Cotton Company as do the bales in their construction and qualities. The Lowry bale is built up from end to end of layers of cotton, put in spirally, and it has a small hole left in the centre of the bale like that in a thread cotton spool. Although this bale will stay in shape for a time after it leaves the machine it has to be bound endwise to keep it from gradually expanding in that direction. These ties, however, are only of wire and three in number. They are put through the bale at the centre and embrace the cotton in this way from the centre outwardly at three different places.

The American Cotton Company's bale can be unrolled from the side, like a roll of carpet, but is almost as hard as wood at the ends. The other can be undone from the ends only, but it has the advantage of showing along its sides the outer edge of each layer and thus of assuring a buyer of its uniform quality.

The general advantages of both are the same. These begin right at the ginning mill, where a saving in bagging and ties is made of from two-thirds to three-quarters of the regular sum, which averages 75 cents for the old style bale. Compressed to a density of thirty-five to forty-five pounds to a cubic foot, as against only twenty-two and a half pounds, the standard density of the old bale, it is as solid as wood and is practically waterproof and fireproof. Insurance charges are lowered, while the much larger amount which can be loaded into a car, vessel or warehouse insures the securing of lower charges for freight or storage. There is no waste in transportation from loose cotton, no second compressing to do, if the cotton is for the foreign market, no need for screws to get it solidly into the ship's hold, and, again, the cost of marine insurance is reduced.

At the cotton mills a saving is made of the cost of what is called breaking out, which is considerable. The new bales either unroll or break out without trouble. A new bale of the unrolling type is being made, which is 36 inches long and 22 inches in diameter and weighs about 280 pounds, which the cotton cloth manufacturer can put right upon the apron of his lapping machine, where it unrolls ready to begin its progress into the carding and spinning machines without an intermediate process. It is declared by mill experts that any desirable mixtures of cotton can be made at once at this stage of the operation by simply placing two or more bales of cotton on the lapper at the same time and unrolling them together.

With all of these advantages it seems remarkable at first thought that the new bale should not have displaced the old one with a rush or that it should have met with any serious opposition, but this has not been true, and the war against it is bitter. This is accounted for by non-partisan observers largely because of the intimately interwoven financial interests which have naturally sprung up among all who were associated under the old system in the handling of cotton from the field to the workshop. There are the ginners, the pressers, the cotton factors, the brokers, the buyers and the transportation men. They were not only personally friendly to one another through long business association, but were often connected by mutual investments in gins, presses, warehouses, compresses and credit connections and even in ships, railroads or mills. If one of these broke from his old associates he was likely to suffer one way or another.

This difficulty has led the American Cotton Company into an undertaking which, entirely apart from the new process of baling, seems destined to cause a revolution in the cotton trade. It has constituted itself a great cotton factor and wherever it is desired enters into an agreement with the persons using its baling machinery to buy all the cotton baled by the machines at a price which will repay the rental of the machines. In connection with this it has instituted a sampling system, which is the real key to the impending revolution. Under the prevailing system there is no established method of determining for once and all what the comparative quality of a cotton bale's contents is and then passing it on into the world's markets, definitely sampled. In other great staples this was accomplished long ago, as with grain, which, once it reaches a recognized elevator, is graded by accepted experts, dumped into its appropriate bin and thenceforth loses its identity and goes forth simply as so much No. 1, No. 2 or No. 3 grain of a specified kind.

With cotton this is all different. Each bale is sampled at the ginnery, sampled again at the shipping place, again at the storehouse or compress and so on every time it changes hands, until it is not uncommon for a bale to be sampled five or six times before it finally reaches the mill. Each time an expert must be employed to do the sampling, men to overhaul and handle the bales and a considerable lot of cotton is drawn out and taken to the sample rooms or wasted. The cost of this, besides the loss of cotton, is estimated at from 10 to 15 cents for each sampling.

The American Cotton Company recommends to each of the lessees of its machines that two proper samples be drawn from each bale, that these and the bale be properly marked for identification, and that thenceforth the bale be forwarded from hand to hand with a guarantee that the cotton in it will be found like the samples. Both companies making the new baling machines lease them instead of selling them and the charge is based upon the old cost of baling cotton and is 20 cents for each hundred pounds put up.

The methods by which the two round bales now being made are produced are interesting.

In the baling machines of the American Cotton Company the lint cotton as it comes from the gin is sent flying up a big pipe, where it encounters first a perforated wheel revolving rapidly under a dust chimney. The lighter dirt in the cotton is blown out of this chimney while that which is heavier falls through the wheel into a dust pan suspended inside. The wheel presently throws the lint off by centrifugal action and it falls into a V-shaped opening whose sides are formed of belts revolving over rollers. These belts lead it to the lower rollers, which set quite close together and draw the cotton out into a bat of even thickness and of the width of the opening. This width determines the length of the bale. There are two sizes of machines, one making a forty-eight-inch bale and the other a thirty-six-inch bale.

The bat now passes between two rollers which are held together by heavy springs, and here all the air is pressed out of the cotton, rendering the previously thick and fluffy bat a close feltlike ribbon. It is one of the recent improvements in the system that this pressure is not produced by two hard metallic faces, but that a rubber band runs over the lower roller between its face and the cotton. This band now leads down to the horizontal centre of the wheel, where it turns upward again around a spindle on which the bale is to be rolled. Another roller sits opposite, with its centre in line with the centre of the first and also with the spindle, and this is pressed toward the first roller by a hydraulic pump, pinching the forming bale between the two. The rubber band passes up over the second roller and then down to a movable tightening roller below.

As the end of the bat of cotton reaches the spindle it begins to wind about it and each fold is pressed close to the last by the opposite roller. In the early days of this bale it was found that the centres were finally so compressed by the increasing tension of the outer wrappers that the bale would not entirely unwind. This is obviated now by giving a lighter pressure at first, and the cotton is allowed to soften up at the centre even more by removing the spindle after the bale is formed. When the bale is rolled to the required size it is taken out, covered, weighed and marked. The machines are built double so that the bat may run continually.

In the making of the Lowry bale an entirely different machine is used. It might best be described as a cotton sausage maker and is not unlike a modern household meat cutter. It consists of an iron cylinder of the diameter of the bale to be produced, and in the top plate are a number of holes radiating about the centre. Just under these holes is a revolving plate turned by power. That is the whole machine. The lint, after being cleaned by any suitable device, is let fall upon the top of the cylinder. The cotton falls through the holes and the revolving plate catches it and draws it in, pressing the air out of it as the cotton passes. As the space fills up, the incoming cotton forces out that which is compressed and this in turn first fills the cylinder below the turning plate in spiral layers and then presses forward into canvas bags suspended below. As each bag is filled, the cotton is cut off, a new bag fitted on, and so the operation goes on endlessly like a sausage filling machine. There is an automatic arrangement for placing the wires in the bales and these have to be fastened before the bag is finally sampled, sewed up, weighed and marked.

That the round bale is making its way into trade favor is evident, but only time can determine whether the bales now being made will be the successors of the old rectangular bale, or some bale yet to be invented. The Planters' Compress Company, which controls the Lowry bale, declares that it has in use this season every machine that it could make in time, and the American Cotton Company has its machines at work in sixty-two places in the South. Out of the crop of 10,000,000 or 12,000,000 bales perhaps 300,000 or 350,000 may be put up this season altogether by the new process.

THE DENSEST FOREST ON EARTH.

Redwood Enough to Last 300 Years at the Present Rate of Cutting.

Henry Gannett of the U. S. Geological Survey in the National Geographic Magazine.

The habitat of the redwood is peculiar. It is found only in a narrow strip, closely hugging the Pacific coast, stretching from the southern boundary of Oregon or just across the boundary—for there are perhaps 1,000 acres of redwood in Oregon—southward through northern California, nearly to the bay of San Francisco.

The closest and finest growth is in Humboldt county, near the northern end. That portion in Mendocino and Sonoma counties is not as heavy or continuous, nor are the trees as valuable for lumber, as they branch lower down. The wood is, however, of slower growth, is denser and harder, and perhaps more durable. The best lumber and the heaviest growth are everywhere in the valleys and on the flats. On the hillsides the trees are smaller and not so close. Nowhere is there any young growth. The youngest trees, which are found only in the northern portion of the belt, are several hundred years of age.

This is probably the densest forest on earth, as measured by the amount of timber per acre suitable for the sawmill. It is not the size of the trees alone which produces this, although they are exceptionally large, even in this State of large things, but it is the great number of trees, the closeness of their stand. In a redwood forest the sun never shines—it is always twilight. You are, as it were, under the roof of a vast temple, a roof of foliage, supported by great tree columns.

The area of the redwood belt has been carefully mapped, and is, as nearly as can be estimated, 2,000 square miles, or 1,280,000 acres. The stand of timber on this area is not so easy to ascertain, but may be computed thus:

	Feet.
Del Norte county	4,000,000,000
Humboldt county	42,000,000,000
Mendocino county	28,160,000,000
Sonoma county, say	1,000,000,000
Total	75,160,000,000

The annual cut by the mills is 250,000,000 feet. At the present rate of cutting, therefore, the supply will last 300 years. In Mendocino county there is nearly nine times as much timber on an acre as in the Southern pineries; in Humboldt county upon 10,443 acres the average stand is 84,000 feet per acre, nearly seventeen times as great as in the Southern States.

There is one cause of destruction from which this tree is entirely exempt—that is, fire. Containing no pitch, but, on the other hand, a large amount of water, it will not burn when green. No fire can run in a redwood forest. It is the only one of our coniferous lumber trees which is thus exempt.

Redwood is in almost universal use on the California coast. In the construction of houses little other timber is used, even as far south as Los Angeles and San Diego. It is exported as far south as Valparaiso, Chili, and westward to Japan and Australia. Indeed, considering its cheapness, $14 per thousand feet in Eureka for the best, it seems strange that it has not found its way in quantity to the Atlantic coast. Certain it is that before many years redwood will supplant the now vanishing white pine in Eastern markets.

HIDING IN BLUE UNIFORMS.

CRIMINALS WHO ENLIST IN THE ARMY OR NAVY.

The Bertillon System Keeps Many of Them Out Nowadays and Leads to the Arrest of Others—Unexpected Meetings of Hunted Men and Pursuers on Board Ship.

WASHINGTON, April 22.—The Bertillon charts of all the soldiers and sailors, regulars and volunteers, in the American Army and Navy have been a good deal thumbed during the past year by detectives. The charts are filed away in the Army and Navy departments and are open to the inspection of properly accredited hunters of criminals. The detectives have found the charts useful only in the cases of such criminals as have entered one of the services after having been described by the Bertillon system by the civil authorities. Not much has been said about the criminals who have taken refuge from the law in the army or navy, only to be identified and apprehended by means of the Bertillon charts, but a number of captures have been made with the aid of the charts, nevertheless. It has been observed by recruiting officers, since the adoption of the Bertillon system in the army and navy, that quite a number of otherwise acceptable applicants for enlistment have balked when they arrived at that point of the physical examination at which the recruiting Sergeant began to make a chart of them. The recruiting officers have naturally concluded in such cases that the men have possessed ample reason for disliking the Bertillon system—that they had been criminals in civil life, in short—and have abruptly told such men to put on their clothes and get out of the recruiting offices at once. There are no terrors in the army and navy Bertillon chart except for the applicant for enlistment who knows that there is another chart of him of the same sort neatly filed away at some police headquarters.

The advantages of the military services as hiding places have often been appreciated and grasped by criminals of note. The hand of the civil law reaches far, but it has generally missed the military establishments. With the beginning of the Spanish-American war shrewd detectives arrived at the knowledge that the craftiest of evildoers prefer the disguise of a uniform to the seclusion of the remotest and presumably the safest huddle of shacks dignified by the name of a town. In some of the countries of Europe the army has for centuries been the refuge of lawbreakers. When the French were at the height of their endeavor to do business with the Arabs at the edge of the sabre, the French army in Algeria was the soft spot made for by most of the famous French criminals. This thing wore out, however. The French police became firmly rooted to the habit, when they failed immediately to apprehend a murderer for profit, of shrugging their shoulders and murmuring "Chasseurs d'Afrique," and when a considerable branch of the Paris Police Department was transferred to Algiers, the desertions from the ranks of the Chasseurs reached astonishing figures.

In this country the disposition of criminals with an eye to safety has been to join the navy, rather than the army. Eight years ago the cashier of one of the big real estate firms of San Francisco went out to luncheon one day. After he had been away for three days the members of the firm took a peek into his books. They discovered that he was shy a matter of $65,000 in his accounts, which, they further discovered, he had lost at the races. The police system of the State of California was immediately put into operation, and the co-operation of all the other American police systems, and those of Mexico and several South and Central American countries, was requested. It was thought that the fugitive had taken one of the Panama boats and landed at one of the minor ports of Central America or Mexico. A detective went down to those regions and came back a month later with a blank look on his face. Then it was figured that the absconder might have gone to Honolulu, and thence to Japan. A favored detective was sent on this pleasure junket, but he had no prisoner when he returned to San Francisco, looking brown and fat. Then it was decided that the man was, in police parlance, a. w. g., otherwise a wise guy, and that his absence was liable to be prolonged.

One of the younger members of the firm happened four or five months later to meet a naval officer whom he knew at the Bohemian Club. The naval officer was attached to a cruiser then lying at the Mare Island Navy Yard. The naval officer invited the real estate man to run up to the yard and take luncheon with him aboard ship, and this the man of business did on the following Sunday. In the afternoon, after showing the real estate man the navy yard, the officer took him aboard the receiving ship Independence, to show him how naval recruits are knocked into shape. The men on the Independence, several hundred in number, were doing fine trencherman's duty at the long rows of mess tables on the main deck of the old, housed-over tub. It was the supper hour. The officer and the real estate man passed fore and aft along the mess tables, and as they did so there was a flurry of excitement at the gangway. There had been a splash in the water when the marine corporal at the gangway had his back turned, and a bluejacket was seen swimming across the stream in the direction of Vallejo, the town opposite the yard.

"Man overboard!" was shouted all over the old frigate, and in a jiffy the crew of the steam cutter was in the boat and she had shoved off to the rescue. The swimmer apparently didn't want to be rescued. He had almost made the Vallejo pier when the cutter pulled alongside of him, and he struggled furiously when the coxswain and a couple of seamen hauled him into the boat. He saw that the proposition was too hard, however, when the coxswain gave him a jab or two with the boathook, and he sat still in the stern sheets for the remainder of the trip across to the Independence's gangway. The officer and the real estate man stood on the platform at the top of the gangway watching the scene.

"Some quarantined chap desperate to make a liberty, probably," said the officer.

Then the steam cutter pulled alongside the gangway.

"Oh, I guess not," said the real estate man when he had a look at the countenance of the prisoner in the stern sheets of the cutter. "That's our missing cashier, who did the firm to the tune of $65,000. We've spent another $10,000 trying to find him. He must have seen me come aboard here and got scared."

The man was taken to San Francisco, tried, and got a long term at San Quentin. It was a foolish thing on his part to scramble into the water when he became aware of the presence of the member of his firm aboard the receiving ship. He would probably not have been discovered had he remained quiet and bent his head interestedly over his plate when the real estate man approached him.

More than a dozen years ago the old Richmond pulled into the harbor of New Orleans. It was during the exposition at New Orleans, and the languid Southern city was filled with detectives from all parts of this continent. The day after the Richmond dropped her mudhook in the harbor the gangway was thrown down to ship visitors. One of the ship visitors was a New York detective, who is still in the traces. The detective had simply gone aboard the ship out of curiosity, not because he fancied he would find any business in his particular line. He was taken in hand by one of the young watch and division officers. The two men were standing on the poop, looking forward, when the detective gave a start, and then, to cover it up, he turned facing aft and said to the young officer:

"That young fellow shining the brass bridge rails—what name is he shipped under?"

The officer, somewhat surprised, gave the man's name.

"One of the best seamen aboard," he added.

"Yes, he ought to be a pretty good seaman," said the detective. "He put in five years aboard a merchant ship in the China trade, and when he got back to this country, over two years ago, he went to a town in western New York and caved his old uncle's skull in with an axe for the sake of a few hundred dollars, which he didn't get, after doing this bit of bad work for it. He's a good find."

The officer was amazed.

"The mildest-mannered bluejacket aboard," he said. "You must have this mixed."

"I fancy not," said the detective. "I had a look at his photograph no later than yesterday afternoon, when I was going over my collection of 'sleepers.' I spent a month in searching for this man at the time, too, you know. I'll take him when I get the papers."

The officer took the detective to the skipper and the story was repeated, as greatly to the commander's surprise as it had been to the deck officer's.

"Of course, when you get the papers, you'll have to have him," said the skipper. "But the thing truly astonishes me. The man is a first-rate sailorman, and I had him in mind for a chief petty officer's rate."

The detective went ashore to do his telegraphing with the New York authorities. The seaman went very white when he was taken by the ship's chief master-at-arms to the mast and the ordered to be confined in double irons in the solitary brig.

"What for, sir?" asked the seaman.

"You'll learn that later, my man," said the commander. "I hope there'll be a mistake discovered."

The seaman knew that there was no mistake. It is a hard matter to saw through double irons, but he did it during the first night of his confinement. It is harder still to saw through the perpendicular bars that run up and down inside the round porthole of a solitary brig. This also the seaman did. He was a slender man, else he could never have gimleted himself through that sixteen-inch porthole. But he did it all right. How he contrived to let himself into the water, a good fourteen feet from the solitary brig porthole, without making a splash sufficient to attract the attention of the night-touring ship's corporal was another mystery. This also he accomplished. Then he swam ashore to the New Orleans docks, and for all the civil, military or naval authorities know to the contrary, he is going yet. When the master-at-arms opened the solitary brig at all hands the next morning he found the sawed double irons and the sawed porthole. When the detective appeared aboard the ship a while later with his necessary orders from New York, the young officer with whom he had talked met him at the gangway.

"I guess that was your man, all right," said the officer. "He has done a neat bit of ship jumping."

Three summers ago an elaborate luncheon was given aboard one of the ships of the North Atlantic squadron, anchored at Newport. About a hundred of the residents attended the luncheon, which was given in the wardroom. To reach the messroom the guests passed through an open line of natty messroom attendants drawn up on the quarterdeck. As the party of guests passed along through the open file of "strikers" one of them, a characteristic-looking English servant, suddenly dropped out of the line of man-of-war servants and retreated forward at a lope. The officer of the deck observed this move. When the guests had all passed into the messroom the officer of the deck sent for the messroom attendant who had so suddenly abandoned his mates. He questioned the man.

"I'm sick," said the bolter.

The officer of the deck told the man to go aft and see the surgeon, and then to report immediately for duty in the messroom, providing he was not placed on the sick list. The servant, with many anxious looks into the messroom while this colloquy was going on, went to the surgeon, and the latter examined him carefully.

"You're malingering, my man," said the surgeon to the cockney striker. "Don't try to shirk work aboard this ship. You are liable to get into trouble at that game. Report to the officer of the deck as fit for duty at once."

There was nothing for it but to obey. The mess attendant was sent into the messroom to help wait upon the ship's guests. He went to the galley up forward with the procession of mess attendants after the soup, and then the procession of soup-plate bearers went aft to the messroom in close file. Of course, the guests looked up at this natty parade of "strikers." As the English mess attendant stepped under the lintel of the wardroom door one of the women at the table became greatly excited and all but screamed. The cockney dropped his soup plate and ran forward.

"The man that robbed me of my jewels! Catch him! Catch him!" exclaimed the excited woman.

"Which one?" inquired one of the officers.

She described him.

"He was our second man. Three years ago, at our Denver house, he went through the jewel chests while we were out and stripped them."

The "striker" was found hiding in one of the bunkers. He was turned over to the Colorado authorities and is still in jail.

ABRAM S. HEWITT ON TRUSTS.

He Thinks the Workingmen Will Gradually Gain Control of Them.

WASHINGTON, April 22.—Former Mayor Abram S. Hewitt, who while a member of Congress was Chairman of the House committee which in 1878 conducted an investigation into the relations of capital and labor, in declining, on the ground of poor health, the invitation of the Industrial Commission to appear before it, has written a letter on the subject of trusts. The failure of his committee to make a report was due, he says, to the conclusion reached by all the members of the committee that no report of any value could possibly be made from the testimony taken. This testimony disclosed conclusively the fact that the witnesses, when cross-examined, invariably contradicted themselves, leaving the testimony which they had given as that of men who had no clear convictions upon the subject. No human being could possibly evolve from this mass of contradictory evidence any definite conclusions whatever as to legislation in reference to the relations of capital and labor, except possibly the one conclusion that legislation could do no good and would probably be mischievous. Mr. Hewitt inclosed an address delivered by him in 1890 on the relations of capital and labor, and says:

"Since the time when this address was delivered still further progress has been made toward the solution of the question which is therein discussed. Corporations have continued to grow, and at the present moment they threaten to absorb the entire industrial business of the country which is capable of being administered by centralized management. This is precisely the direction which I anticipated, and seems to me to be in accordance with the evolution which has take place within the last half century, and which may be in accordance with a natural law, if there be natural laws involved in the progress of modern civilization. My own view is that when industry has been sufficiently centralized and the ownership widely diffused through the distribution of shares, the workmen will gradually acquire these shares and control the property which they represent. In fact, I cannot see any other outcome for the present movement toward the consolidation of industrial enterprises than the transfer of the control to those who are actually engaged in the work of operation. How far legislation can be made to promote this desirable end I am unable either to predict or suggest.

"As a general proposition I regard legislative interference with capital and labor as pernicious. Women and children may properly be protected from abuse, but I think individual interests are best safeguarded by compelling the parties concerned to settle their own differences and decide upon their own interests. The corporate movement, however, seems to me to be altogether advantageous to society. I do not doubt that, with the spread of knowledge through technical education and the general improvement in the intelligence of men, who under our modern conditions of industrial life have ceased to be machines and have become operators of machinery, the standard of self-respect, of comfort and of happiness will be permanently raised.

"There is one question, however, with which society will probably have to deal, and that is the increase of population. I forbear to discuss this question for obvious reasons, but I am quite confident that in the future the world will experience more danger from redundant population than from any other cause. The time, however, is far distant when this question will become of any practical importance, although in some countries in the world it presses for solution to-day. In France the standard of comfort has been raised by the control which the people seem voluntarily to have exercised in regard to the increase of population. Whether the moral standard in France has been degraded by this or any other course I do not pretend to judge. This is a question for moralists, and it may become a question for legislators."

METROPOLITAN'S GIANT ENGINES.

Electricity Will Be Generated by Eleven Machines Capable of 72,600 Horse Power.

The great plant which the Metropolitan Street Railway Company is building on the East River, between Ninety-fifth and Ninety-sixth streets, to furnish electricity to the company's lines throughout the city will contain eleven stationary engines, which, it is said, will be the largest ever constructed in the world. One of the engines has already been delivered by the Edward P. Allis Company, and this company, which has its works at Milwaukee and an office at 26 Cortlandt street, this city, is now at work upon the others. The big machines will be identical. Each is to have a vertical compound engine of the most modern type, and will weigh 660 tons and be forty feet in height. Every throb of the mighty pistons of each engine will carry an amount of energy equal to 6,600 horse power, and when the eleven are set up and their big fly wheels revolve the passengers on the Metropolitan company's lines will have back of them in the big power station a potential energy of 72,600 horse power.

Each engine is to drive an alternating current generator, and it was said yesterday by an engineer that the electricity from this power station alone should be sufficient to take care of all the cars on all the present Metropolitan lines. The engine which has already been delivered is now being erected, but it will take some time to put it up, and it is certain to be several months before the complete plant will be ready to be operated.

The Allis Company is now considering the building of a twelfth engine of the same pattern for exhibition at the coming International Exposition at Paris. The pattern is known as the Reynolds-Corliss engine, it having been designed by Edwin Reynolds, general superintendent and Second Vice-President of the company.

Another record which has been broken at the Metropolitan Company's new power station is that of chimneys. The plant's stack is the largest in the world and the tallest on the continent. It is 353 feet high and has a 22-foot core. In the matter of height it is beaten by a stack at Hutte, Saxony, which is 460 feet high, and by several in England. The chimney of the Omaha and Granting Company at Denver, which is 352 feet 7 inches high, also comes within a few inches of it. The big chimney, which was built on a concrete foundation resting upon piles, weighs 8,540 tons.

THE BEST OF MAPLE SUGAR

A DELICACY GIVEN TO FEW MORTALS TO TASTE.

Conditions Necessary to Obtain Maple Sugar in Perfection—The Ideal Bush and the Old-Fashioned Camp—Process of Boiling the Sap—Sugaring Off—The Result.

The maple sugar crop is now being harvested up in the woods of New Hampshire, Vermont, New York, Connecticut and wherever there are maple trees. It is a great crop, too, in its way and amounts to some thousands of tons all told. The genuine maple sugar, however, is a difficult article to get and commands high prices at a distance from the sugar bush. The kind of stuff found in the average city grocery labelled maple sugar is chiefly made of brown sugar and has only the faintest flavor of the pure woods-boiled sugar.

The very best sugar can hardly be purchased at all. It comes from some isolated patch of maple trees on a big, paying farm. The bush has been carefully culled out so that the trees are far enough apart to give them leaving room and a chance to harden their fibre with the swaying of the wind. There are fifteen or twenty acres of the wood lot, with a little swamp at one end and pasture land on three sides of it and a stream on the fourth. The road is so far away that the dust does not dim the green leaves of summer time. A partridge has its nest somewhere there and the crows congregate in the half dozen hemlocks or pines in migrating time.

The dead limbs of the trees sometimes are trimmed off. Ambitious sapling trees make the boiling-down fire in the spring. In so large a lot there is always a dead or fallen tree or perhaps two fit for a sugar fire. Besides these is the now-disappearing split rail fence, which has given way to the wire fences.

The sap trees are tapped with a three-eighth or half-inch auger bit. The hole is bored about two feet above the root slanting three inches deep, and the spile put in so that the sap runs down the spile freely. The spile is made of wood; a branch of sumach an inch in diameter, is cut off and sawed to about nine inches in length. Two inches from the larger end the piece is sawed almost half in two and the seven-inch end is split off. An expert spile maker cuts his branches eleven inches long and when he splits them makes two spiles at a whack. The soft pith of the branch is burned out with a red-hot bit of wire and the intact ends are whittled down so that they fit in an auger hole of the size used in the trees. There are various fancy spiles, patented, made of metal, with pails to hang on hooks under the nozzle. With the home-made spiles go milk pans and three-foot-long logs, hollowed out like canoes, to catch the sap. All the sap catchers are called buckets and the best-flavored sugar comes from wooden canoe-shaped buckets, which have seen half a dozen years' service.

The camp is a little shed—a mere roof of boards or bark supported by poles laid across the branches of four trees. It is a shelter during the spring rains for the boilers. The pan is made of heavy sheet iron. It is eight or ten feet long, and four feet wide. The sides are four inches high. It is all riveted and has to be absolutely water-tight of course. At one end at the lower edge is a little faucet with a turncock. The pan is mounted so that it all slopes toward the faucet. The pan rests on stone walls along each side and across the rear end. The rear end has a chimney of ordinary stovepipe a yard or so high. The pan is two feet above the ground. To fire the pan a pile of wood is gathered from all corners of the lot. Dead branches, bits of boards, parts of fences, and any fallen trees are dragged with a two-horse team to the camp and piled up loosely, because that is the most convenient way. The pile may be five or even ten feet high and always contains several cords of wood. It is gathered in the fall because then it is easiest to find and haul the wood.

When the sap begins to run freely in the early days of the spring, after the sun has thawed the south side of the trees, the boiling-down pan, the buckets and the spiles are all hauled down to the woods. The furnace is cleared of snow and dried by fire. One's way is made about the camp by treading paths in the snow and the buckets are set to catch the sap. The trees are tapped so early that usually the sap runs for only an hour or two a day. A big iron kettle—the very one used to make soft soap in—is brought down for sugaring off and swung by a chain from the butt-end of a thirty-foot sapling pinned over the top of a solid stump to swing sideways, instead of up and down as in a wellsweep.

The second day in a small bush toting the sap begins by the two or three men going out with yokes holding on each side milk pails and bringing the sap to a big hogshead near the boiling pan. The third day, if there is enough sap, the pan is filled about a third or half full and the fire started. The sap boils and clouds of steam rise from it. Sticks, five and six feet long, are kept burning under the pan on a six-inch bed of redhot coals and ashes. More sap is poured in as the water evaporates and the fluid in the pan changes slowly from the color of water to a brown that grows steadily darker.

When about half boiled down it is a favorite drink with the young folks. Children who drink too much of the stuff have suffered spells of serious illness, have even died, if the makers of sugar may be believed. When the syrup is beginning to thicken and get sticky the long iron kettle is swung around under the faucet of the pan, after the fire is drawn, and the syrup is run out for the second or sugaring-off boil.

Meantime, as the sap boiled in the uncovered pan leaves fell into it, the dead twigs from the trees floated on its surface, and, best of all, the thin blue smoke from the clean firewood switched down on the sap—giving it the necessary flavor without which maple sap sugar is not maple sugar.

More sap is put in the pan and the boiling begun all over again there. Under the kettle is built a very artistic fire. Green birch saplings make the best. The saplings are cut into three-foot lengths, and the kettle, though it swings a foot from the ground, sits six inches deep in a pit of the burning wood built up around it. The sticks emit a most fragrant smoke, easily seen through, as it is thin, but it puts the finishing flavor to the sugar as it boils in the kettle. The syrup thickens rapidly. It can no longer be drunk down by the dipperful, even by the sweetest-toothed visitor of the bush.

At last the maker, after many trials, takes a dipperful of the syrup and holding it high up pours the syrup back into the kettle. As the last drop runs out it hangs a moment, as if undecided, then swings lazily down. Stretching behind it is a thin thread, like spider's silk, which breaks off and drifts in the wind.

A big milk pan full of snow, clean and white, resting nearby, is brought to the kettle and half a dipper of the molasses is strung over the top of the snow. It runs down into the snow as if it were water for a moment, then sets. It is sugar wax then, and more delicious candy would be hard to find. It sticks to one's fingers and melts in one's mouth and haunts the memory for long years after.

In a few minutes more another half dipper on the snow does not wax when it sets, but sugars. That is, it crumbles instead of stringing. Instantly the kettle is swung off the fire, by means of the thirty-foot sapling, and the molasses from the kettle is dipped into bread tins, and when it is cold the sugar is light yellowish brown, moist and delicious. The tins are always greased with pure lard or tallow. Otherwise the sugar would have to be broken out piecemeal.

The maple sugar harvest is a festival time. There are sugaring-off parties at which the maple product appears as syrup, wax, sugar candy, drink and in various styles of cakes. Hot raised biscuits go with the syrup, and that is the chief dish next to the wax on snow.

QUEUES OVER CHINESE GATES.

Signs of Justice Dealt Out to Rebels in Anhui Province.

SHANGHAI, March 28.—Letters from a missionary who has just travelled across North Anhui from Honan, selling Bibles for the British and Foreign Bible Society, give graphic pictures of the terror and distress caused by the rebellion in that province. The missionary started out with a colporteur and two young Chinese wheeling barrows. For several days they simply heard rumors of the approach of the rebels, who were killing, plundering and burning. Finally, after four days' travel, they neared a large city toward which crowds of fugitives from the surrounding country were pouring by every road. At all the small villages rusty old guns were being furbished up and spears brought out for use. The city was reported to be full, but thousands were pressing about the gates eager to secure the shelter of the walls.

The missionary was unable to gain entrance to the gates because of the crowd, which would give way only for an official. Many of these refugees had come some distance, and all were carrying their household belongings in carts or in wheelbarrows. Little children were crying from hunger and exposure.

On reaching Suchou, in Kiangsu, it was found that the soldiers had defeated the marauders, killing a large number. Over the west gate were hanging about seventy queues, some with the ears attached, and over the south gate were 200 more, grim evidence that justice had been dealt out to some of the criminals who have terrorized the whole province.